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An

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on

Hydrophobia

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Hydrophobia.

This term is derived from *ὕδωρ* "water" and *φοβία* "to fear", and affords an instance where a disease derives its name from a single symptom even when this is not an uniform one. It originates with the canine species comprising the dog, wolf and fox; and some have added the domestic cat, these alone are capable of communicating it, notwithstanding the host of medical authority to the contrary: many have asserted, ^{that} the horse, ox, and hog possessed this power, and we are told that M Majendie proved by direct experiment that the human subject was capable of communicating this disease by inoculation of the virus, he collected a portion of the saliva from a man suffering Hydrophobia in its last stage, and inserted it under the skin of a healthy dog, and that the dog became rabid a month afterwards. From the position we have taken, we would refer the occurrence of the disease to some other cause that had not been noticed, probably the dog had been exposed to the bite of a mad dog

or it might have been the effects of violent nervous irritation and not the genuine rabies.

In opposition to the opinion of this disease being propagated by the horse, we can adduce one striking instance, that fell under our observation during the last summer. A horse was bitten by a dog known to be mad by the injury done by him elsewhere, in the course of twelve days the horse discovered most of the symptoms of rabies, and bit the groom while administering some remedy; the next day Dr V— was called to see the man and stated to him the doctrine that was generally received and as he supposed was correct, that a gregarious animal could not communicate the disease, also the method to be pursued by those who entertained a different opinion, viz. the excision of the bitten part or amputating the hand, and of these he might choose. The man preferred running the risk of incurring the disease to the necessity of undergoing an operation; Dr V— went on to treat the bite as a common lacerated

wound, the man recovers perfectly although the horse died in a few days. Madness in the dog is ushered in by the common appearances of fever, a dull heavy look, hanging of the tail with a disposition to bite every thing in its way, soon after these appearances, he becomes thin and weak, his breathing is quick, hurried and difficult, his tongue is somewhat curled and hangs from his mouth, and assumes a leaden hue: a frothy saliva is discharged, he loses all appetite: these symptoms gradually increase until he becomes quite furious in which state he remains; when at last he seems entirely overcome by exhaustion and generally dies within thirty six hours from the occurrence of the complete paroxysm.

Melancholy experience has proven that the nearer to this state the more dangerous the bite.

The symptoms in a man bitten by a mad dog present more or less the same character, the part bitten first shows signs of the occurrence of the disease, by becoming painful, the cicatrix becomes red and elevated, sometimes discharging a thin ichor attended with a peculiar tingling sensation in

the part, and pains shoot from the wound to every part of the body, more particularly to the chest producing a sense of straitness and choking about the throat, with horror at the sight, or sound of water falling from one vessel to another. The patient becomes depressed and anxious, sometimes falls into a melancholy from which he is with difficulty roused, his sleep is disturbed by frightful dreams and spasmodic startings; the respiration is at this stage labourious and frequently interrupted by sighs and other indications of anxiety, the pulse is quick, though the general temperature at this time does not vary much from the natural standard. There is entire loss of appetite, attended with great thirst but the patient dare not drink; In the latter stage the countenance becomes haggard, the eye turged, sometimes very fierce and glaring, his mouth and fauces are filled with a tough thick saliva which he is constantly spitting from him, complaining of being annoyed by it; the restlessness is extreme, the muscles of his face and neck are distorted, the pulse be-

comes more hurried and irregular; His gesticulations are expressive of the utmost wretchedness and despair, he will sometimes attempt to lie down and compose himself when he will immediately start up, seeming as if every posture was painful and there was no relief in change.

Most writers notice a painful priapism, this is probably nothing more than a participation in the general spasm which very frequently attends the last stage.

There is however a great difference in many of the leading symptoms of this disease, arising from idiosyncrasy or some casualty; Medical records afford many instances in which there was no dread of water, which is a common characteristic and indeed is one of the principal diagnostics. In others there is no local affection, yet besides this, the disease goes through its regular course, and terminates with its usual result.

There is an equal difference, in the length of interval between the bite and the appearance of the symptoms; six or seven weeks is considered the ordinary time, but instances are related of the virus lying dormant for twelve months and

longer, while the disease sometimes supervenes in four or five days. This irregularity is no doubt owing to the same causes which affect the occurrence of most contagious diseases, viz. the nature or presence of the predisponent or exciting cause, which gives energy to the virus, as the depressing passions, great fatigue &c.

A like uncertainty exists among quadrupeds, the medium term is thought to be ten or twelve days.

The cause of the original disease is supposed to be the excitement of vehement rage, putrid food, long continued thirst, severe hunger, a hot and sultry state of the atmosphere;

but all of these are assigned as causes with ^{out} sufficient grounds.

Vehement rage will produce an influence on the lalia and render it capable of exciting alarming nervous symptoms,

but not the specific symptoms of rabies canina. Putrid

food as has been well observed, offers too general a cause

for a disease of so rare occurrence, in fact dogs subsist mostly upon meat in this state, particularly in warm climates,

where the disease seldom if ever occurs; for we are

told that it is not known in the West Indies and South America; and experiments by confining dogs without food or water even to starvation, show at least that there are not very frequent causes. That a peculiar state of the atmosphere conduces to the origin of this disease, we will not deny; probably rapid changes from heat to cold and vice versa, or great heat combined with moisture, as the disease is observed to prevail most after such a state of the atmosphere. The general character of the symptoms indicate that the nervous system was the immediate quarter of the disease, this was the opinion of Cullen and Morgagni while Dr. Rush refers the appearances to the sanguiferous system and thought it nearly identical with the general class of Malignant fevers, arising from the same causes, varying nothing in its course; and requiring the same treatment; he goes so far as to call it the Hydrophobic state of fever. This appears to us objectionable and affords a striking illustration by this close generalization

of his innovations upon regular nosology, and favours
 not a little of his notions in favour of the unity of
 disease. We would only remark that the analogy we
 think was not sustained throughout the progress of the
 diseases, for it is a fact of general notoriety that this
 virus (Hydrophobic) is less volatile than most other
 poisons, and never produces its effects unless accom-
 panied by the bite of the animal or inserted under the
 skin; and is never found diffused throughout the
 atmosphere; and is this the case with the particular
 disease (small pox) which he takes to establish the anal-
 ogy? Every practitioner will allow that this last
 disease may be imbibed at the distance of ten or
 twelve feet: this alone will serve to illustrate the
 difference of nature, and consequently method of cure;
 although they may have some symptoms in common, which
 happens more or less with any two diseases, appearing
 as the regular and probably diagnostic symptoms in
 the one, and only incidentally connected with the other

from the peculiar state of the habit or some other cause; when these most likely do not belong to the same class of disease. We are told by Dr. Rush that exposure to cold night air, a wound in a tendinous part, worms, the bite of an angry but not diseased dog, have all caused cases of spontaneous Hydrophobia; how much more safely could we refer symptoms from these causes to violent nervous irritation, as they are the most frequent causes of such irritation. Dr. Chapman mentions that in Gastritis there frequently occurs many of the symptoms of Hydrophobia, as dread of water, intolerance of light or sound, difficulty of deglutition and extreme nervous sensibility; and can the identity of these two diseases be contended for?

Neither do post-mortem examinations afford any evidence of the analogy between this and the class of malignant fevers; for the stomach in these last is always more or less phlogosed, but in Hydrophobia there are no regular appearances; the reports of dissections of subjects dying

of this disease under apparently the same circumstances, are so entirely different, some asserting that the fauces & parts connected are very much inflamed, and even the oesophagus and stomach, showing signs of inflammation advancing to gangrene; while others discover nothing of this; yet sometimes they have found the brain affected, the vessels being turged and the ventricles full of water.

Dr Mead in a paper on this subject found the fauces very much inflamed, the left lobe of the lungs black with collections of black blood in its substance, the liver was hard and of a yellow bilious colour, and a quantity of greenish viscid bile in the stomach. Cases are related by Sauvages and Morgagni of evident changes in the character of the blood. There is nothing connected with this disease that seems to be more commonly received and established than that the symptom of Hydrophobia or dread of water is peculiar to the human race, but the occurrence of a case to the contrary during the last year, as reports to me by a very intelligent & respectable

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gentleman, excite doubts whether the ground so generally taken by the medical world be tenable. The nature of the case was this, a sheep having been bitten by a mad dog, in eight or ten days manifested the usual symptoms of the disease, and during the most violent stage, a picher of water was dashed upon it, whereupon the animal immediately became convulsed. There is occasionally a departure from its general character and it assumes the intermittent type; the intervals are for the most part lunar, as at the return of every full moon the part bitten becomes very irritable, and spasms or great anxiety about the plicordia supervene. This is most apt to occur from the disease communicated by the cat, and the virus in a measure seems to loose its specific character, by passing through the cat, as some of the most alarming symptoms are frequently absent, or very much diminished in violence; the patient for example, discovering little or no dread of water, which always regulates the quantum of tetanic constriction. The nature of this disease is so unsettled, and as there have

been so many hypotheses to explain its nature and affix its seat, so they have given rise to a corresponding diversity of treatment. The remedies for Hydrophobia divide themselves into two kinds - 1st Such as are proper to prevent the disease, after the virus of the rabid animal is received into the body. 2nd Such as are proper to cure it when formed.

The most efficacious measure of the preventive plan, is the entire excision of the bitten part and inducing salivation. Cases have been reported of preventing the disease by washing the wound in salt and water, and Dr Haysgarth advises frequent effusions of cold water, in order to wash out the virus; this is rather an equivocal remedy and no doubt originated in necessity, or the patient's fears of the Knife; great reliance is also placed upon the free use of the ^{applications} suppurative; but the weight of medical authority greatly preponderates in favour of excision; both as it more effectually, and sooner removes the virus from the system. From the circumstance of the poison, lying dormant for a considerable time, the operation should be performed even a week

after the bite. There is another method proposed by a Russian physician, M. Marochetti, which throws new light on the subject and promises something towards the mitigation of this disease: He first points out certain indications for discovering the existence of the virus and then gives the means of destroying or preventing its effects; we will insert here his theory. "It is evident that this virus does not continue in the wound, but is carried in its full force to a part of the body, presently to be described; (which he afterwards tells us is, where the common ducts of the sublingual and submaxillary glands open on each side of the frenum of the tongue) at this point it instantly acts as a powerful astringent, and by accumulation inflames and shuts the passages ^{by} which nature endeavours to expel it from the animal economy. It is precisely to the extremities of these ducts that the Hydrophobic virus is conveyed after a bite inflicted by a rabid animal, and there it is temporarily detained forming at the two spots just described one or two small tumours of unequal size: by touching these with a probe, it is found there is contained

a fluctuating humour, which is, as absorption proves the virus itself. It is there that nature delivers to us her enemy, and it is from this hold the surgeon ought to expel him. He goes on to say "That these tumours should be opened by a sharp lancet or cauterized; as soon as the operation is over the patient should wash his mouth with a strong decoction of the flowers and tops of the *Genista luteo-tinctoria*. And this should be the common drink of the patient from the bite to the appearance of the tumours. The time cannot be exactly defined at which these tumours will appear, so that the lower part of the tongue should be carefully examined twice a day, for six or eight weeks. Unless the tumours be operated upon in the course of twenty four hours, the virus is re-absorbed and the general disease supervenes." He adduces many cases to bear him out in the correctness of his views and the efficiency of his plan. During the formation of these tumours says Dr Marochetti the pupil is dilated and fixed, the look is sad, uneasiness is complained of, and there is a small pain in

the head. We cannot accede to the first part of his position, that the virus does not continue in the wound, at least for a few days: If not how do we account for the success of excision, even when delayed for several days? Yet though we have differed from Dr Marochetti's theory in part, we concur with him, that the virus displays itself in the sublingual gland or the extremity of its duct, this seems to be the work-house of assimilation. May not the symptoms be accounted for by supposing, that the virus of the rabid animal is introduced into the system by the bite; that it there lies dormant, untill brought into action by some cause favourable to that peculiar action. That the affection begins at the point of inoculation, and extends itself through the system by means of the nervous sympathies, producing an immediate and peculiar diseased action in the sublingual glands, thus completing all the symptoms of Hydrophobia. That the disease prior to this peculiar action in the sublingual glands, differs in no respect from the tetanic spasm; and that this action must

take place in the glands above named, to constitute the complete disease. Our attention was first directed to this subject by observing a custom among the negroes, of what they call worming their dogs. I have frequently witnessed this operation, and it consists in nothing more than extirpating the sublingual glands; When these were entirely removed the dog was perfectly safe from the disease.

The universality of the practice gave credit to the plan and we were induced to make the following experiments.

1st The sublingual glands were extirpated from several dogs and they were exposed to the bite of a mad dog, yet neither of them were affected with the disease. Supposing that the occurrence of the disease might have been prevented by some casualty, we were induced to repeat the experiments; and exposed them to dogs that were mad at all the different stages of the disease, and met with the same result.

2nd At the same time we exposed two dogs, that had each lost one sublingual gland, one of these went mad, the other escaped entirely.

3rd That no doubt should exist as to the certainty of the subjects of these experiments, having been exposed to rabid animals; dogs perfectly healthy and entire were exposed, and the disease in every case showed itself in a character that could not be mistaken.

If however the local measures should prove ineffectual, we must resort to general means, which unfortunately are very uncertain; and probably no particular plan can certainly be said to have cured a single well established case. And we feel authorized in saying this from the frequent failure of all remedies single or conjoined, and from the disease sometimes wearing itself out; as we can hardly attribute the cures of some reported cases, to the heterogeneous and incompatible remedies employed. We will however present such as are of most promise. Some physicians have supposed it necessary to stimulate and support the vital power in order to enable it to resist the enervating effects of this disease, in which they consider the most danger and for this purpose have advised the liberal use of the volatile alkali and Camphor: the P. bark has been used for the same effect. In direct opposition

to this plan, is that of immediately exhausting the system by very frequent and copious bleedings, even to deliquium; on the principle of its very inflammatory character. As co-operating with ^{this} immersion in cold water was used, and all measures that reduce the living power to its last sb. - And records are replete with cases in which this depleting plan has succeeded, but frequently other powerful agents as Mercury, were used at the same time which rendered these reports very unsatisfactory. Not a few have entertained the notion, that the virus should like other poisons be opposed by antidotes and the usual specifics. The muriatic, sulphuric, and above all the acetic acid has been regarded as anti-lyptic; and the alkalis (of which ammonia is the best) have been esteemed as belonging to the same class. Reports speak favourably of Mercury. The corrosive sublimate has been preferred as producing its effects soonest, together with incision or probably frimigation as the object seems to be a spudg ptyalism. The history of this disease proves that pain, and that of the most unrelenting order, forms one of its leading symptoms; hence

Antispasmodics would seem to be demanded. With this view Opium
 Musk and Stramonium have frequently been employed, and pro-
 fessional prejudices have dealt out encomiums upon these with a
 liberal hand. These may palliate, but we have incontestible evidence
 of their insufficiency to cure the disease. Dr Physick supposes
 the immediate cause of death to be a sudden and spasmodic
 constriction of the glottis, inducing suffocation; and that it might be
 prevented by creating an artificial passage into the lungs, whereby
 life may be continued long enough to admit of the administration
 of appropriate remedies; for under ordinary circumstances, be-
 gins of the officinal preparations can be exhibited, at least in the advanced
 stages all fluids are rejected; and some of our most active articles
 operate more energetically in Tincture or water solution. The impor-
 tant indications which this practice seem to answer, promise to
 strip Hydrophobia of some of its horrors, as the stomach pump
 has, from poisons of the mineral and vegetable Kingdoms.
 Our attention should next be directed to the spasmodic
 action of the chest and throat and ^{to} prevent its returns. To pro-
 cure this end, all the exciting causes should be studiously

avoided, such as light, noise, agitation in the air, and above
 all water; for it is a frequent but censurable practice for
 every physician who may be called in, to present a glass of
 water in order to witness its effects:—The motions of a female
 dress or bed curtains produce the same effects; and on no
 account should the patient be moved from his bed to be plunged
 into cold water or warm oil as some have advised, and as
 much composure as we can possibly procure under this restless
 state of the body is positively demanded. (Some have recommended
 the straight jacket) In connexion with these the Dover's pow-
 der is serviceable, since the system is free from irregular
 action when there is a general moisture on the surface.
 The purgatives are not particularly indicated, yet the bowels
 should be kept open, and when plethora prevails to any
 extent, blood should be drawn from the arms and repeated
 if necessary, but should not be urged ad deliquium animi
 as some practitioners have contended.—